

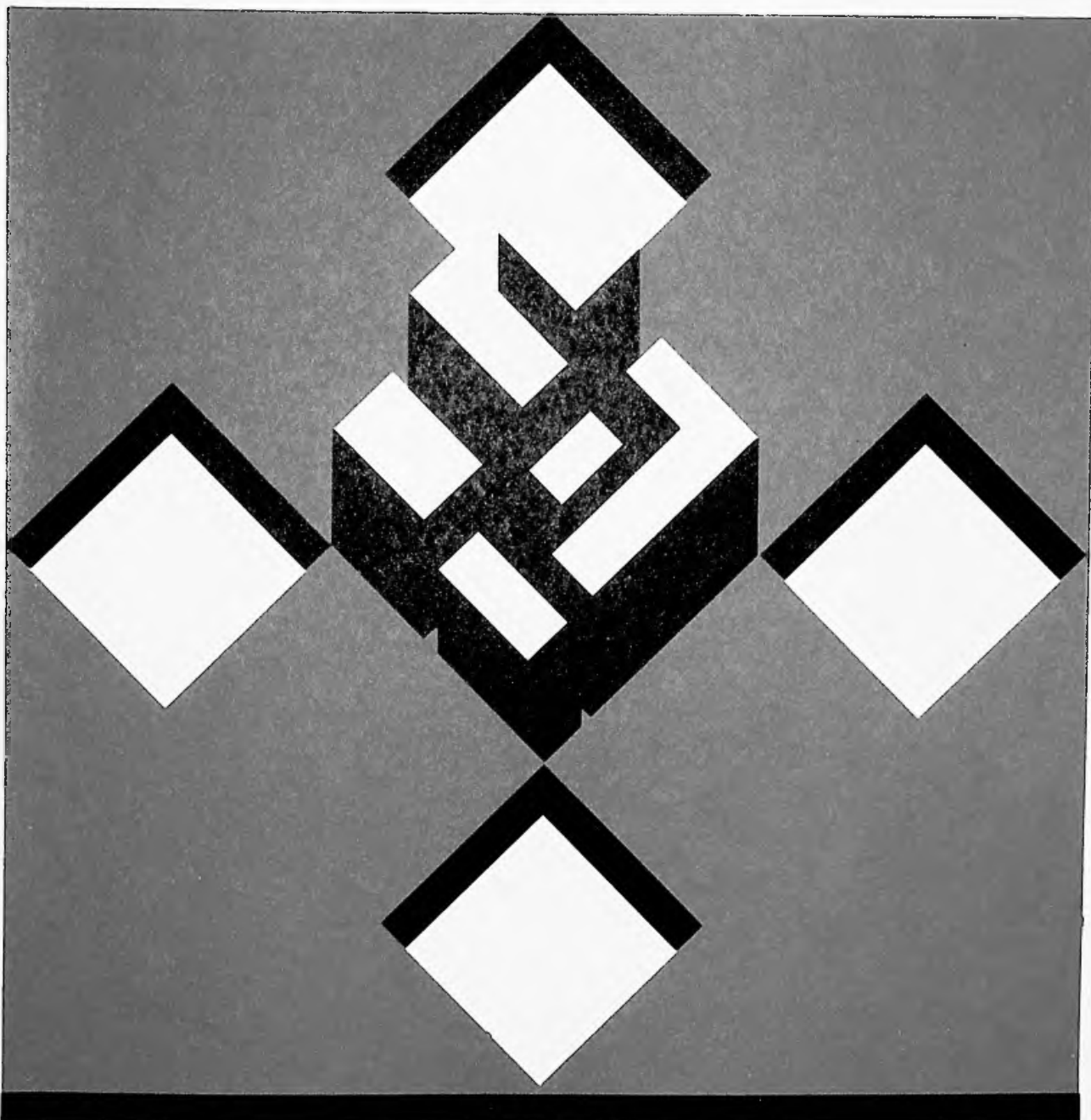


U.S. Department of Housing and Urban Development
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Annual Housing
Survey Studies

**Housing in America:
The Characteristics and Uses
of the Annual Housing Survey**

No. 6



Housing in America: The Characteristics and Uses of the
Annual Housing Survey

By

John M. Goering
Department of Housing and Urban Development
Office of Policy Development and Research

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Data from the Annual Housing Surveys are available in joint HUD-Census publications. The national data are published in Series H-150, comprising six reports, and the metropolitan data are published in Series H-170, with a separate report for each metropolitan area. Series H-171 is a supplementary report on the metropolitan areas. These reports are also available in microfiche form from the Library, Bureau of the Census, Washington, D.C. 20233. The published reports may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. All the data are available in public use computer tapes from the Data User Services Division, Bureau of the Census, Washington, D.C. 20233.

The research forming the basis for this report was conducted by the Evaluation Division in the Office of Policy Development and Research, U.S. Department of Housing and Urban Development (HUD).

FOREWORD

This paper, the sixth in our series of Annual Housing Survey (AHS) studies, is a compendium of the research to date that has utilized the capabilities of the AHS for monitoring and interpreting current developments in housing, neighborhood, and household characteristics.

The Department of Housing and Urban Development has funded a national housing survey, performed by the Bureau of the Census, since 1973, with separate surveys for 60 metropolitan areas included since 1974. The survey provides current information on the size and composition of the housing inventory, characteristics of its occupants, changes in the inventory resulting from new construction and from losses, indicators of housing and neighborhood quality, and characteristics and dynamics of urban housing markets for the Nation and four census regions. Every third or fourth year, these data are also gathered for most of the largest metropolitan areas and for some smaller, fast-growing metropolitan areas.

The Annual Housing Survey is designed to help planners, policy-makers and scholars understand and analyze changes in the housing inventory and its costs and changes in housing needs and demand. Longitudinal linkage of the annual national file provides unparalleled opportunities to study market processes and household mobility; the metropolitan surveys give greater detail on the housing and population characteristics of suburbs and cities in specified metropolitan areas.

As use of the AHS has grown, the need for an overview of the variety of applications and the problems uncovered through use has become apparent. This paper, by John Goering of HUD's Office of Policy Development and Research, provides a guide to the many papers, both published and unpublished, which describe use of the AHS data to monitor housing conditions and needs, to analyze change in housing markets, and to target and evaluate public programs. It also documents limitations and concerns of which future users should be aware. In thus synthesizing the experience of many AHS users, Dr. Goering provides a valuable base for future work.

Preparation of such a review required extensive consultation with those producing, using, and evaluating Annual Housing Survey data. I am grateful to those cited under Acknowledgements, whose assistance and expertise were essential to this paper. In addition, the following HUD

employees contributed greatly to its development and organization: Kathryn Nelson, the editor of this series; Duane McGough, whose Division of Housing and Demographic Analysis oversees the design and production of the Annual Housing Survey; and Connie Casey, Paul Burke, and Kenneth Wieand. We hope that readers of this report will participate in the process of using and improving our understanding of housing in the United States.



Donna E. Shalala
Assistant Secretary
for Policy Development
and Research

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INTRODUCTION

The purpose of this report is to provide an introduction to the characteristics, uses, and limitations of the Annual Housing Survey (AHS). A national as well as a metropolitan sample, the survey currently provides the largest data set describing the characteristics and conditions of housing in urban and non-urban places throughout the United States for the intercensal period following 1970. Since 1973, the Bureau of the Census has collected AHS data on housing, neighborhood, and demographic characteristics for the Department of Housing and Urban Development.

This report will:

- o Provide a brief description of the National and SMSA-AHS samples,
- o Discuss some of the policy, research, and programmatic uses of the data,
- o Describe some of the limitations of the AHS.

The references section includes most of the published reports and working papers which have made use of AHS data. The numbers in parentheses in the text refer to these studies and any relevant page numbers. 1/

A BRIEF DESCRIPTION OF THE AHS

Four basic documents describe the purposes and sample characteristics of the AHS. These are:

- o U.S. Department of Commerce, Bureau of the Census, 1979. "Data from the Annual Housing Survey." Data Access Descriptions, DAD No. 43.
- o U.S. Department of Housing and Urban Development, Office of Policy Development and Research, 1979. "A Guide to the Annual Housing Survey: A Closer Look at the Nation's Housing and Neighborhoods." HUD-378-PDR (2).
- o U.S. Department of Commerce, U.S. Bureau of the Census. Current Housing Reports, Annual Housing Survey, Parts A through F, and Housing Characteristics for Selected Metropolitan Areas. Washington, D.C.: Government Printing Office.
- o U.S. Department of Housing and Urban Development, Office of Policy Development and Research. 1978. "Researcher's Guide to HUD Data."

These reports provide varying degrees of detail about the design, content, and availability of AHS data. The following is a basic description of both the National and the AHS-SMSA data sets derived in part from the above sources.

The National AHS Sample

The first national sample of housing for the AHS was conducted during the late summer and early fall of 1973, with October taken as the date to which the results apply. It covered approximately 60,000 units --- including 16,000 rural units --- selected from among the 68.7 million housing units identified in the 1970 decennial Census. The 1970 lists were updated to include those units newly constructed since the census was taken. The second national AHS sample began in August 1974, with an additional 16,000 rural units included in order to increase the reliability of estimates for that segment of the national housing stock. Each year, the number of new construction units added to the inventory by new construction was greater than the number lost; consequently, the sample grew to 79,900 units in 1975 and 82,100 in 1976. In 1977 the sample size was reduced to 76,000 units, but in subsequent years the sample will grow somewhat, as there are no plans for sample reductions through 1980. 2/

The AHS gathers information on the characteristics of households, housing units, and neighborhoods. Household characteristics include size, race, composition, income, and age and education of head. For housing, it contains data similar to those in the decennial Census on financial and structural characteristics of housing units and their amenities, including number of rooms and bedrooms, kitchen facilities, plumbing facilities, heating equipment and fuel, basement, air conditioning, and elevators. 3/ As with the Census, data are collected on housing value and rent. In addition, beginning in 1974, homeowners and renters were asked about utility costs. Based in part on this experience information on utility expenses will be gathered in the 1980 Census. Unlike the Census, the AHS obtains information on breakdowns in mechanical equipment, including plumbing, heating, and electricity, and on the presence of -- and interruptions in -- such services as water supply, sewage disposal, and trash collection. Problems such as leaky roofs and basements, holes in walls and ceiling, broken steps, and peeling paint and plaster are also identified.

The AHS also inquires into the environment of the neighborhood in which the housing unit is located. Factors considered include the presence of abandoned or boarded-up buildings, heavy street traffic, and street or neighborhood crime. Household members are asked how satisfied they are with their neighborhood's public services. Finally, the survey asks recent movers to describe the characteristics of their previous and present residences, their present neighborhood, and the reasons for their move.

The basic results of the National AHS sample are published for each year in six major reports (only the first four were published in 1973):

- A. General Housing Characteristics
- B. Indicators of Housing and Neighborhood Quality
- C. Financial Characteristics of the Housing Inventory
- D. Housing Characteristics of Recent Movers
- E. Urban and Rural Housing Characteristics
- F. Financial Characteristics of Housing and Neighborhood Quality

These published reports include data at the national level as well as separate data for each of the four census regions by type of residential area: total metropolitan, inside central cities, inside SMSA's but not in central cities, and outside SMSA's. Characteristics are also published for black and Spanish-origin households.

The entire AHS data set is available for public use in the form of information on individual households on microdata computer tapes. The AHS microdata files identify four census regions, each SMSA of 250,000 or more population at the time of the 1970 census, metropolitan or non-metropolitan residence, and urban or rural residence. The samples of the National AHS for any particular SMSA are, however, extremely small; the maximum sampling rate is only 1 in 1400 units, or less than 0.1 percent of the population in the metropolitan area. Microdata tapes for national as well as SMSA-AHS samples may be purchased from the Customer Services Branch, Data Users Services Division, Bureau of the Census, Washington, D.C. 20233.

A unique asset of the AHS is that generally, except for losses, the same housing units remain in the sample from year to year. Beginning with the 1974 data, it is possible to match units from one year to the next; at present, the years 1974, 1975, 1976, and 1977 are available. A unit added to the sample from the new construction universe also continues in the survey. A number of research centers are currently preparing a merged, longitudinal system for three years of national AHS data, including documentation.^{4/}

The SMSA-AHS Sample

Since 1974, the Bureau of the Census has also gathered AHS data from samples within 60 selected metropolitan areas. The substantial diversity found within and between metropolitan areas requires a level of geographic detail that permits analysis of the changing characteristics of cities, suburbs, and metropolitan centers. Some cities gain population while others

decline in size; rates of housing loss, displacement, and rehabilitation vary noticeably among cities and metropolitan areas. The lack of uniformity within and between SMSA's requires larger sample sizes than those found in the national AHS in order to estimate patterns and dynamics of housing, population, and mobility characteristics reliably. The sample size is 15,000 for 12 of the largest SMSA's and 5,000 for the remainder. The sample rate varies from 1 in 14 units in Saginaw, Michigan, to roughly 1 in 250 units in the New York metropolitan area.

The 60 selected SMSA's were originally divided into three groups of approximately 20 each, with one group to be interviewed every three years on a rotating basis. Beginning in 1978-79, the three-year SMSA groupings were reorganized into a four-year cycle with 15 SMSA's being interviewed each year. The first 19 SMSA's, interviewed in 12 panels from April 1974 through March 1975, covered approximately 135,000 units. The samples were selected from the 20-percent sample tape of the 1970 decennial Census, and updated for new construction. The sample size was approximately 15,000 for the largest SMSA in each Census Region (Boston, Detroit, Los Angeles, and Washington, D.C.) and 5,000 for each of the remaining 15. The second group of 21 SMSA's was surveyed in 1975-76. The sample covered approximately 145,000 units, about 15,000 for the four largest SMSA's in each Census Region (Atlanta, Chicago, Philadelphia, and San Francisco) and 5,000 units in each of the remaining 17 SMSA's. The remaining group of 20 SMSA's, interviewed in 1976-77, had a total sample of 140,000 units. The four large SMSA's were Houston, St. Louis, Seattle, and New York. When the four-year cycle is introduced, 15 SMSA's will be interviewed each year, three having a sample size of 15,000, and 12 having a sample size of 5,000. Sample sizes are approximate.^{5/}

THE USES OF THE ANNUAL HOUSING SURVEY

Unlike the decennial Census, which has been available since 1790, the AHS is a relatively new data set. It is less well known as a source for policy, planning, and research uses than Census, vital statistics or other national statistical data sources. Despite this newness, a substantial number of policy, programmatic and research uses have been made by public and private agencies and institutions. These uses suggest, but clearly do not exhaust, the potential analytic uses of national and metropolitan AHS data.

Four distinctive features of the AHS are basic to many of the specific policy and analytic uses of the data which will be discussed:

1. The Annual Housing Survey is unique in its capability to describe, monitor, and thus predict the nation's housing needs. No other national

data source provides such complete data on housing and housing quality throughout the nation.

2. The longitudinal character of the data offers unique opportunities for monitoring and assessing the dynamics of housing succession, filtering, and redevelopment. As an annual survey of the condition of housing units and the characteristics of their occupants, it provides an invaluable data set for measuring program impacts and the effects of changing market characteristics, and includes the ability to compare these changes over time and between urban and non-urban areas.

3. The AHS provides a substantial amount of current information about cities, suburbs and rural areas which is not available from the decennial Census or Current Population Survey Reports. It offers a current, standardized, and comprehensive data set on housing, population and neighborhood characteristics. The existence of these data means that it will no longer be as necessary for Federal or local agencies to fund additional surveys.

4. The metropolitan AHS provides extensive disaggregated time series information on the changing characteristics of metropolitan areas and offers samples that are large enough to provide geographically detailed and disaggregated information. Data from either Current Population Surveys or the national AHS provide too few cases for such analyses.

Uses of the AHS

The following sections illustrate current and planned uses of both national and metropolitan AHS data. Some of the uses are based on published data, while others require microdata files. To date, relatively few users have utilized more than one year of AHS data. Few have attempted to link data files from one or more years of national data, although longitudinal links will provide some of the most valuable information from the survey. At present, there is only one wave of interviews for each of the 60 SMSAs in the metropolitan AHS. However, it will soon be possible to compare three-year trends on data from the first wave of 20 SMSA's.

A number of distinctive uses of the AHS stem directly from the need for sub-national data in the post-censal period. Benchmarked to the 1970 Census and to Current Population Surveys with significant numbers of comparable variables, the AHS provides an indispensable source for understanding the characteristics and dynamics of U.S. housing markets. The data are complete and current enough to permit monitoring of housing stock and housing markets at the national and local levels, and rich enough in the linkages of housing, neighborhood, and personal characteristics to permit a variety of detailed analyses. This combination of assets is essential to the use of the AHS in designing, implementing, and evaluating a variety of policies and programs.

1. Monitoring Housing Needs

The AHS provides a fundamental source of information on the condition, cost, and availability of housing. Indeed, it is often the sole source of such information. The data identify private homes, apartments, mobile homes, condominiums, and vacant units. This information forms the basis for the President's Annual Report on the National Housing Goal to Congress. (50) This report discusses the changing conditions of housing and neighborhoods in cities, in metropolitan areas, and outside SMSA's. These efforts help to identify the general location (city/suburbs, inside/outside SMSA, urban/rural) and extent of defects in the rental and owner-occupied housing stock.

When compared with earlier census information, AHS data on housing condition shown a long-term decline in some measures of housing problems. In 1950, for example, there were over 14 million occupied housing units with incomplete plumbing. This figure declined to 2.5 million units in 1973 and 1.94 million units in 1976. Such improvements have raised the question of future usefulness of deficient plumbing as a measure of American housing quality. Attempts are being made, using AHS data, to develop a series of additional useful indicators of housing defects and quality. (3, 44, 53, 71, 72).

Such examinations reveal that despite considerable effort and expenditures aimed at improving the quality, quantity, and affordability of housing, over 25 percent of American households continue to experience housing-related problems. These problems include structural deficiencies of the unit they occupy, occupancy problems such as overcrowding and excessive cost burden, or a combination of structural and occupancy problems (4). Using a variety of measures derived from the 1973 AHS, one source has identified 6.3 million households living in physically "marginal housing that meets the minimal criteria of physical adequacy, but that still needs renovation or major repairs to bring it up to reasonable standards for safety and health." (25:89) Another report, using 1976 data, found 5.8 million households housed in units with structural deficiencies, another 2.3 million living in overcrowded housing, and 11.1 million with an excessive cost burden. (4:1)

These reports also make it clear that there is considerable variation in both the condition and availability of housing in different areas of the country and for different populations. For example, the increase in the number of owner-occupied and rental units is more pronounced in rural areas than in central cities. There is a higher incidence of housing-related problems for lower-income groups such as renters, the elderly, black, and Hispanic households as well as for those living in the Northeast. (4:73) Housing deficiencies, it has been found, affect from 3 to 10 percent of all rental units, but only between 1 and 3 percent of the owner-occupied stock (75:8).

The level of housing need in various housing sub-markets can be measured by the level of housing-expense burden, or median housing expenditures. If certain areas or population groups are spending a disproportionate amount of their income on housing, it may be necessary for Federal or local policy makers to adjust housing subsidy or assistance programs to these varying levels of need. Considerable attention has been directed toward determining the relationship between income and rent levels or housing expenditures, for analytic as well as program-related purposes. (20-24, 33, 40, 52) A much higher proportion of renters than of owners, for example, have an excessive cost burden. (4) In 1970, roughly 40 percent of all renters were paying 25 percent or more of their income for rent, and by 1976 the figure had increased to 46.6 percent. 6/ The percent of homeowners without mortgages who were paying 25 percent or more of their incomes for housing-related expenses rose from 13.9 percent in 1975 (the first year data were available) to 14.4 percent in 1976. (50: Appendix B, Table B-7A)

The apparent rising cost of owning a home has also been examined, using AHS data to determine whether there is an "affordability" problem. (23, 24, 32, 58, 70) Some researchers have found that "when the increase in ownership costs is adjusted to take account of housing quality improvements or to exclude subsidized housing from the 1970 price of new houses, the difference between the annual growth of costs and income is reduced to between 1.4 and 2 percent per year." (24:70) Others have looked at the trends in housing cost in terms of construction, operating and investment costs. (45:7-8) Estimating many of these costs is, however, often dependent on the Bureau of Labor Statistics' homeownership and rent indices as they appear in the Consumer Price Index (CPI). The homeownership index of the CPI, for example, covers only recently purchased units, thereby giving an upward bias to the data. The rent index also has many built-in lags which do not capture current rent costs. (45:21) Reformulating the homeownership and rent indices, through the use of AHS data and hedonic techniques, will improve the capacity to measure both quality and price of units at the national as well as SMSA level. (22)

The detailed data provided by the AHS and hedonic or other econometric techniques are providing important help in identifying the current market, housing, and neighborhood conditions which differentially affect housing costs for owners and renters. Neighborhood effects, for example, have been identified as an important component of different housing or property values, and a set of variables more likely to be directly amenable to public policy intervention. (52:15) Improvements in estimation procedures for hedonic price functions in variable housing markets may improve both the ability to establish effective indicators of housing quality and the capacity to monitor program effectiveness in the areas of income transfer, housing allowances and Section 8 programming.

AHS data also provide an important source of information on housing supply and demand as one component of the process of monitoring housing needs, supplying information on housing demand and supply as well as on cost and condition. Information on the components of change in the supply of urban, rural, and occupied mobile homes is available for various sectors of the nation. Data on the supply of new housing and vacancy duration (55) provide municipal (46), state, and regional planners with a crucial source of information. Local variations in housing need or demand are important to the building, construction, and real estate industries as they estimate short and long-term trends. AHS information can clarify the local market conditions which may produce an oversupply or undersupply of rental or owner-occupied units at various levels of cost, as well as establish the conditions for the successful rehabilitation of housing. Information on the housing needs of recent movers also helps to establish the location and type of housing demand in various regions, cities, and metropolitan centers. (1, 3, 12, 21, 25, 38, 53, 62).

At the local level, cities such as Washington, D.C., Miami, and Philadelphia are using the metropolitan AHS for their cities to estimate housing demand and need. AHS data on the characteristics of households are of crucial importance in planning housing and other service delivery programs, as well as in providing estimates of vacancies, levels of abandonment, and rehabilitation.

There are indications from a number of cities of both a need and a demand for data on additional metropolitan areas. Written requests have been received from Trenton, New Jersey; Wilkes-Barre, Pennsylvania; Manila, Ohio; and Toledo, Ohio to be included in the list of metropolitan areas that are sampled.

Two additional characteristics of currently available AHS data are relevant to an understanding of the dynamics of local housing markets: the characteristics of the local neighborhood and the extent of racial discrimination confronting minority households. National as well as metropolitan AHS surveys ask respondents to evaluate a variety of neighborhood conditions and services. The ability to plan for residential patterns and population distribution in urban and rural areas necessitates an understanding of neighborhood-specific forces which play upon people's commitment to, or investment in, an area as well as on their decision to move. (29:2) HUD's obligation to provide "a suitable living environment" requires a clear and systematic understanding of these local forces and the way they are perceived and evaluated by local residents. Neighborhood factors, it has been shown, play a significant role in establishing the thresholds which generate dissatisfaction, complaints, and residential mobility. (2, 52)

While most indicators of housing quality seem to improve over time, most measures of neighborhood quality have worsened. (50:20) There have been

increasing reports of problems with street crime, abandoned buildings, street repairs and lighting, litter, and deteriorating housing. In fact, more than three-quarters of all U.S. households report one or more substantial neighborhood or local problems, and the number of complaints has increased since 1973. Roughly half of all American households--48 percent--are also dissatisfied with local public services in areas such as police and fire protection, health, transportation, and education. (50:24) These conditions, however, prompt only about 16 percent of all renters and 9 percent of all homeowners to reply that they want to move. Even though respondents may not be impelled to move, it seems relatively clear that deteriorating neighborhood conditions have an effect on property values. (37) The precise degree and meaning of the significance of neighborhood variables remains, however, to be established. (42, 43) Attempts are underway to establish the logical order of neighborhood influences, as well as to improve sampling and questionnaire construction in this area. (42)

Racial discrimination in the form of price differentials or of differential treatment based on race constitutes an important societal problem that is in need of immediate remedy under the terms of existing Fair Housing legislation. AHS data provide an important source of information to assist in documenting the changing extent of racial and economic discrimination in various parts of the country. An examination of AHS data for 1974-75, controlling for a substantial number of economic and demographic variables, reveals that race has a direct effect on tenure status. Whites can achieve homeownership at much lower income levels than blacks, and blacks consume 13 percent less housing than whites even after factors of income, preference, and tenure status are taken into account. (77:7-12) Using these data, discrimination has been shown to restrict the supply and quality of housing to blacks.

The analysis of metropolitan AHS data to test for the existence of varying levels of race and price differentials can facilitate the targeting of the HUD's Title VIII enforcement activities. Successive panels of AHS can be utilized to detect changing patterns and levels in various city, suburban, and rural settings. Local fair housing enforcement agencies can utilize the data for their areas to estimate the cost of housing for whites and blacks (17:326) in order to establish the relative degree of racial price differences as one component in a targeted enforcement process.

2. Analyzing Change in Housing Markets

In addition to information on housing characteristics necessary for establishing estimates of need, the AHS has the capacity to provide unique information on the changes in the characteristics of housing. The longitudinal character of national data and the capacity to measure changes for

metropolitan areas in three- or four-year cycles offer an important data source for measuring the filtering of housing units, the effects of programmatic intervention in local markets, and information on the extent and direction of residential mobility in the United States (69). AHS data are, for example, one source of information on the determinants of residential displacement, suburbanization, and the back-to-the-city movement.

America's homeowners and renters are highly mobile, with 17.1 percent of the total population moving in 1975-76 alone. The bulk of these moves are intra-urban, with substantial numbers of residents - blacks more than whites - moving within central cities. One recent effect of residential mobility is that most central cities and large SMSA's lost population between 1970 and 1975. Smaller SMSA's, with populations between 100,000 and 250,000, increased in size. White residents continue to decentralize, moving out of central cities at a rate three times faster than blacks. These patterns are not, however, uniform for all metropolitan areas, and one million people chose to move back to the city from the suburbs in 1976. (30, 41, 54)

AHS data, at the national as well as the metropolitan level, can clarify the extent, direction, characteristics, and causes of the relatively high but variable rates of residential movement in the United States. In the absence of current census data, or data at a relevant level of geographic detail, AHS data are being used as a central source on the determinants of residential mobility. Journey-to-work data, a Department of Transportation supplement to the 1975 National and 1975-76 SMSA Surveys, offers additional information on the means and time of transportation to work for each household worker. (8, 9)

AHS data have been used to describe the length of tenure and extent of interstate and intrametropolitan mobility in cities, suburbs, and outside metropolitan areas. (6, 28, 29, 30, 41, 48, 60, 77) Patterns of mobility in American metropolitan and nonmetropolitan areas since 1973, trends in population redistribution towards or away from cities, and the extent of spatial deconcentration and population displacement have all been explored with these data.

AHS data have been of particular use in clarifying the limited nature of the "back to the city" movement (78), as well as providing insights on the extent and character of the displacement of lower-income, inner-city households by middle-income households. (47, 48, 60) In both cases, current metropolitan AHS data have suggested the limited or geographically specific character of these two issues. The dominant tendency in residential movement is still clearly away from central cities toward suburban and nonmetropolitan areas. (6)

The data also permit a current description of the characteristics and extent of black suburbanization. (7, 39, 48) Detailed analyses

comparing patterns of black and white housing transfers confirm that blacks are more likely to be concentrated in poorer quality suburban housing, and in areas of relatively high minority concentration.

A unique advantage of AHS data is that it is possible to track dwelling-unit transition between different racial and income groups in relation to the characteristics of the housing unit. It is thus possible to establish rates of succession for individual dwelling units using a multivariate set of controls (60). In general, then, there are unique opportunities to investigate the characteristics of recent movers and their housing in both suburbs and central cities, and to determine at least major parts of the sequence of housing changes associated with residential mobility. These changes may be related to racial, socioeconomic, life-cycle, and neighborhood factors.

The AHS cannot provide all of the information necessary to distinguish forced moves from voluntary residential mobility, but it can be used to compare sites and cities which other data indicate are supposed to have high levels of displacement with those that do not, in order to establish the characteristics of local housing markets that may or may not generate displacement. 7/ The data also cannot completely specify the extent of spatial deconcentration of minorities, because of the lack of sub-city data. Information on racial or ethnic turnover exists, however, which may indicate some of the pre-conditions for residential racial integration. 8/

The journey-to-work data attached to the AHS are also relevant to specific policy concerns. For example, the Department of Transportation, sponsor of the transportation supplements, is planning to use the data to establish long-term trends in population distribution, in order to assess the appropriate transportation policy responses for the next two decades. Moreover, the data are of value in describing the market segments in which energy-saving or car pooling is most effective, suggesting strategies for targeting new DOT initiatives. Data have already been analyzed on the determinants of accessibility to workplace, and a number of socio-economic and neighborhood characteristics have been shown to have important relationships to workplace accessibility, "reflecting the effect of urban scale on degree of specialization of activities and differentiation of land use." (77:6-24)

3. Evaluation, Monitoring, and Targeting of Programs

One of the principal uses of AHS data is for the evaluation, monitoring, and targeting of Federal housing and community development programs. The data are one important source of information in determining how well programs are working, who benefits from the programs, and whether their cost effectiveness can be improved. The data on housing markets and household behavior are often a central component in the implementation and improvement of programs for a number of Federal agencies.

One of the most direct benefits of AHS data is the provision of information on eligible recipients of program subsidies. Analysis of the data indicate, for example, that approximately 33 million households are eligible for some form of HUD subsidy under current income limits. There are roughly 24 million eligible households within SMSA's and 9 million outside. (45:55) In addition to the identification of income-eligible households, it is possible to identify their housing needs (or deficiencies), and their age, family, racial, and labor-force characteristics. This information also helps to determine the probable costs of subsidies. It may clarify how far, and at what cost, public policy can go in inducing homeownership and what kinds of rental stock will be available to meet the needs of renters. (42)

One of the hallmarks of the Carter Administration's Urban Policy has been the effort to target Federal assistance in ways which would support racial, economic, and neighborhood diversity in urban areas. Federal programs are now being coordinated and created to meet the diverse needs of both small and large cities. This is being achieved through improved targeting of programs to areas of greatest need and through simplification and improved flexibility of Federal programs.

Targeting and improved flexibility can only be effectively implemented if there is an accurate understanding of the diversity of urban and housing issues, as well as an accurate assessment of the utility of new programmatic initiatives. One of the clearest illustrations of the use of the AHS for more effective targeting and monitoring of Federal urban initiatives is in the allocation of CDBG funds. The allocation of these funds has often been based on seriously out-of-date census information. In conjunction with a HUD evaluation of the CDBG program, AHS data are providing current information on housing and neighborhood problems that is being used to evaluate the allocation of funds. The data may become the basis of a system of Urban Distress Indicators relevant for the development of more effective allocation formulas for CDBG funds.

One of the most direct programmatic uses of AHS data is in establishing and modifying Fair Market Rents (FMR's) for the Section 8 Program. The Economic Market Analysis Division of HUD's Office of Policy Development and Research uses national as well as AHS-SMSA data to identify the median rent for recent mover units which passed Section 8 housing standards. These FMR's are developed for 60 SMSA's for which there are AHS data; as well as for the four census regions for which there are national data. The FMR's are modified when necessary with the advice of EMAD Area Office staff. FMR's had previously been set using 1970 census figures updated with data from the Consumer Price Index (CPI). This latter method was abandoned because census CPI rent levels differed substantially from those gathered by the AHS, and because of the inadequacy of the CPI sampling design. (19, 22, 63-67)

AHS data are also being used by EMAD to verify and refine the limits of income eligibility for various HUD programs. Data from County Business Patterns for the nation are compared to AHS data in order to establish the best formula for allocation purposes. It has been estimated that without the correction factor introduced by AHS data, this income would be overestimated by 5 to 10 percent. EMAD is also developing computer models of housing market dynamics based on census and AHS data, so that HUD Regional and Area Office can better review proposed projects, conduct Urban Development Action Grants reviews, and prepare local Housing Assistance Plans.

AHS data are also used to analyze the factors associated with successful housing rehabilitation. A proposed HUD project will evaluate alternative rehabilitation incentives in order to assess the best form of rehabilitation for the lowest Federal financial outlay. It is expected that there will be noticeable variations among SMSA's and among neighborhoods within metropolitan areas in the success of rehabilitation efforts. AHS data will provide benchmark and time series data necessary for evaluating the targeting of rehabilitation funds. It will greatly assist in clarifying the housing market and neighborhood conditions necessary for the survival of rehabilitated housing units.

Part of the President's Urban Policy also is a commitment to develop an Urban Data and Information System to provide "timely and accurate data on urban trends and conditions" in order to improve local planning and evaluation activities. In his letter establishing a Statistical Policy Coordinating Committee, James T. McIntyre, Director of the Management and Budget, spelled out the needs for improved local data sources:

"Our knowledge of the nature and extent of specific problems in particular States and communities is limited by a shortage of accurate, up-to-date data, e.g., on population, income, unemployment... housing, education, services and finance.... Clearly, there is a need to develop improved economic, financial and social data to facilitate analysis of specific community situations and prospects, and sound public policies to deal with them."

The Urban Data Task Force, established by the Statistical Policy Coordinating Committee, has as its specific objective establishing a set of urban indicators relevant for planning and evaluation activities at the local level. The AHS is one of the basic sources of data being reviewed as an element in this system of urban indicators.

Closely related to this issue is the question of developing an effective system for urban and community impact assessment. Under an executive order, the Domestic Policy staff and the Office of Management

and Budget have indicated that all Federal agencies should conduct analyses of the impact of their new major policies and programs in urban areas. Because of its longitudinal, current data on subnational areas, the AHS can be a central data source for determining the spatial dimensions of public policies. It can help show how policies affect central cities and suburbs, both absolutely and relatively. The data are already being used to aid urban areas more effectively, thereby decreasing the probability of unanticipated and possibly negative effects of Federal or local actions on cities.

Other agencies are also planning to use the AHS as a basis for the formulation of improved statistical monitoring programs. For example, a committee consisting of representatives of the Comptroller of the Currency, the Federal Deposit Insurance Corporation, the Federal Home Loan Bank Board, and the Federal Reserve will obtain AHS data on tract clusters in metropolitan areas in order to provide information on income, racial composition, and housing characteristics to the bank examiners for the four agencies. The AHS provides current data on race, homeownership, and housing characteristics which can be compared with specific mortgage lending practices in urban areas. This committee decided to use AHS data because it could not afford to gather its own, and because private firms do not have information the characteristics listed above. AHS data on residential energy use and conservation measures have been used by the Energy Information Administration of the Department of Energy as one part of its baseline data for annual reports to the Congress and the President. (16) Others, such as Oak Ridge National Laboratories, have used the same data to make long-term projections of energy needs. (35, 36) The Bureau of Economic Analysis of the Department of Commerce has used 1977 AHS data to revise the housing services component of the National Income and Product Account. (10)

The Metropolitan AHS is also the basis of a supplement which will focus on the adjustments, or lack thereof, made by the disabled to their housing accommodations. This "Housing Modification Supplement" will provide useful data on the housing needs of the disabled and infirm.

AHS DATA LIMITATIONS

The Annual Housing Survey is a sample survey in which there are inevitable tradeoffs between cost, geographic detail, the number of items, and its utility to users. Many of its shortcomings are typical of other national and metropolitan data series. In addition, AHS data have experienced changes in content and coding in attempts to improve the usefulness of the sample and respond to new policy concerns. This section is designed to alert users to possible difficulties in the use and analysis

of AHS data. A number of potential additions are also listed which have been identified by users as changes that might improve the survey's usefulness. It should be noted, however, that the AHS, like the Census or Current Population Survey, is limited in its capacity to absorb new questions by cost constraints and the potential burden on respondents. It is also difficult to assess the trade-offs between adding new questions and modifying old ones, thereby losing the value of time-series comparability.

Sample Design

Many of the limitations of the AHS are clearly identified in the appendices attached to published AHS reports. Appendix A, for example, discusses the definitions of the categories used, including information on the differences between AHS and decennial Census formats. Appendix B discusses sample design, estimation techniques, reliability of estimates, and sampling as well as nonsampling errors.

The sample design used for the 1973 AHS differs from that used for subsequent years of the national AHS. The overall sampling rate used to select the sample for the 1973 AHS was about 1 in 1,366, based upon the housing units surveyed in the 1970 Census of Population and Housing plus a sample of 1 out of 1,366 units constructed since 1970. In 1974, HUD decided to increase the reliability of the AHS estimates for rural housing characteristics by doubling the number of sample housing units from rural areas, thus increasing the sampling fraction to 1 in 683. In 1976, based upon the revised sample design, 75,500 sample units were eligible for enumeration. However, 11,000 sample units were not interviewed because 6,600 were no longer part of the housing inventory (due to demolitions, disaster losses, condemned units, etc.) and 4,00 were "nonresponse" cases (refusals, no one at home, temporarily absent, etc.).

Given this sample design, there are a number of problems concerning the identification of units added to the sample. Newly constructed units were identified by sampling building permits issued more than 5 months before the first month of interview for that survey year in permit issuing areas. It is estimated that this 5-month lag results in a 3 percent undercoverage of conventional new construction for the most recent survey year (85 percent of the nation's new construction is covered by building permits). New construction in areas that do not require building permits (15 percent of the construction) is covered by canvassing and updating land area listings in segments with specified boundaries. The sampling procedures for units selected from the decennial Census did not allow for coverage of certain kinds of units added to the inventory since 1970. These include housing units created in structures that were completely nonresidential in 1970, mobile homes placed outside of mobile home parks,

occupied mobile homes which were vacant in 1970, and houses moved to site. A Coverage Improvement Program was initiated by the Bureau of the Census to correct such deficiencies. In addition, any unit added to the sample in 1976 -- such as a unit in a structure not counted in 1970 because it was unfit at that time -- should rightly appear as a new unit, because it is an addition to the 1970 inventory.

Concern has also been expressed about the utility of AHS data in calculating replacement of inventory losses. Estimated rates of loss of units based on AHS data appear to "overstate losses over the decade (of the 1970's) for units which have moved out and back into the inventory during the decade." In addition, "the AHS does not have a separate estimate for units added from conversions and other sources or for mergers, but counts these elements in a residual category with sampling changes and errors, and processing errors." (72:14)

It is, therefore, important for the user to understand that sampling procedures which can cause bias, and sample size which directly affects reliability, should be considered when interpreting the results of the survey. The reliability of the data can be measured through the construction of confidence intervals using standard errors which have been calculated for AHS estimates. This is of particular importance when comparisons of differences between areas or between sample years are based upon relatively small numbers of cases.

Comparability of Existing Questions

The issue of the comparability of AHS questions refers to both their comparability to decennial Census and CPS questions and to comparability of questions used in the questionnaires for the AHS since 1973. It also refers to the ability of the user to interpret the meaning of given questions consistently.

One of the basic differences between AHS, CPS, and 1970 census information is that the latter two made extensive use of self-enumeration while AHS data are generally based on personal interviews. In the 1970 Census, for example, race was essentially a self-classification by respondents according to the race with which they identified themselves. In the AHS the classification of race was made by an interviewer. Also, in the 1970 Census, Hispanic-origin persons are identified by various criteria, including birthplace, language, and surname, while in the AHS Spanish origin was determined on the basis of a question that asked for self-identification of a person's origin or descent. Additionally, in the 1970 census, some questions of Spanish origin were misinterpreted in the southern and central States, causing substantial overcounts of Spanish-origin populations in those States. Users must, therefore, take care when comparing AHS results on race and ethnicity with data gathered using Census procedures.

Another area of difference between the Annual Housing Survey data and Census data lies with the AHS concepts of recent mover and the Census-CPS information on migration. Recent mover households in the AHS are those households for which the heads moved into their units during the 12 months prior to the interview, while the counts of migrants in the Census-CPS refer to the individuals whose current place of residence is different than in March 1970 or, more recently, 1975. The 1970 Census Components of Inventory Change program provided data on recent movers using the same definitions as are used in the AHS.

There are also likely to be significant differences in the data on income and education. The time period covering income in the AHS, for example, is the 12 months prior to the date of the interview, while CPS data refer to the calendar year prior to the date of the interview. ^{9/} Another contribution to the income data variance is the difference in methodology in the two surveys; i.e., CPS asks a detailed battery of questions for each wage earner, while the AHS collects aggregate data for families and individual data for nonrelative household members. In the 1970 census, data "for years of school completed" were based on responses to two questions: the highest year of regular school each household member attended, and whether that year was completed. AHS data are based on responses to a question about the highest year of regular school attended by the head. AHS respondents may have reported the year in which the head was currently enrolled, whether or not the year was completed.

Perhaps the most serious limitations associated with the comparability of AHS items are alterations in definitions and questions, as well as the absence of specific items for one or more years of the Survey. Minor changes in the wording of questions are found in most years of the AHS. The subject area in which the greatest number of alterations has occurred is on residential mobility and journey to work. Questions regarding reasons for living five miles from work, and the travel time from home to work, were not in the 1973 and 1974 national AHS or the first metropolitan AHS. Questions about the principal means of transportation to work and the hour the respondent left for work were asked in 1975 for all workers and were continued for the head in 1976 through 1979. A question on whether the head of the household would move closer to work if there were affordable housing appeared only in 1976 and 1977.

A number of questions about the reasons for moving from the respondent's previous dwelling have been regularly asked. The 1973 "new job" category was altered in 1974 to include "looking for work." In the 1973 AHS one of the reasons a respondent could select for moving was simply "the neighborhood." This relatively vague category was changed in 1974 and subsequent years, to two new categories: "neighborhood overcrowded" and a "change in the racial or ethnic composition of the neighborhood."

These two categories clarify the meaning of neighborhood-related reasons, while leaving some uncertainty as to what level of overcrowding could instigate a move and whether it was a racial (nonwhite) or ethnic (Italian, Russian, etc.) change which resulted in the decision to move.

The set of questions on the evaluation of local neighborhood conditions has also been noticeably altered since 1973. In 1973, for example, respondents were asked to rate the overall condition of their "street", while in later years they were asked to rate the condition of the neighborhood. Also in 1973, respondents were asked whether conditions on their street were "disturbing, harmful, or dangerous" and so objectionable that "you would like to move from the neighborhood." In 1974, respondents were asked about conditions in the "vicinity" of their homes or the area within a quarter of a mile of their property, while in 1975 and subsequent years, they were asked about different aspects of their present neighborhood. The 1973 categories of "disturbing" and "dangerous" were changed in 1974 to questions about whether the condition existed, was "bothersome," or "so objectionable that you would like to move from the neighborhood." While variations in wording for the lead-in phrase to the question may cause differences in the responses, another major source of differences may be the lack of a designated respondent for these opinion questions. Year-to-year changes in attitudes or opinions may reflect changes in the respondent for the same household or may be a reflection of changes in household occupancy.

There have also been a number of reasonably important changes in the questions asked in the AHS regarding energy conservation. Questions about weatherstripping and caulking, and about exterior wall and roof insulation installed in the previous year, for example, were asked in 1975, 1977, 1978, and will be asked again in 1979. The questions were part of the Energy Supplement, not sponsored in other years. Questions on the maintenance or modification of the furnace, on thermostat controls, and on the amount and cost of insulation were added in the 1977 energy supplement. A question on whether an air conditioner was purchased in the preceding 12 months was asked only in 1974 and on the SPO supplement.^{3/}

There have been a number of minor but noteworthy changes in the questions about, and coding of, information on income. Questions about business and farm income for unrelated individuals, in addition to family income, were not asked in 1973 or 1974 but have been available since. Information about income of household residents who were not related to the head was not recorded in 1973 or 1974, or in the first two years of the metropolitan AHS.

Finally, there have been a number of modifications and additions to questions concerning mobile homes, condominiums, taxes, and mortgages. Most of these changes have been designed to provide additional data, and have not been major alterations of existing questions.

The utility of AHS questions is not solely a matter of questionnaire construction. There are a number of limitations associated with the nature of questions which may limit their utility for certain users. The principal limitation in this regard is that certain data are based solely on the respondents' judgment or perceptions and not on verifiable or objective information. Householders, for example, were asked to report the frequency of heating equipment breakdowns during the preceding winter. There is no corroboration or means of validating the accuracy of their recall. Respondents' estimates of the value of their homes were, however, validated as part of the 1970 decennial Census evaluation program. A sample of units sold within a year after the census was selected from the Government Division's "Sale Price Survey." The actual sales price was compared with the value reported in the census, and the estimates were shown to be reasonable.

Questions concerning neighborhood conditions on the AHS are also limited, in that they record conditions only as they are perceived by the respondent. Opinions about such issues as crime, street repairs, or noise are not measures of actual conditions and are not verifiable. Respondents from the same area or neighborhood may perceive widely varying neighborhood conditions and levels of satisfaction, although research has found that responses to the AHS questions about neighborhood quality vary systematically by neighborhood, so that respondents' evaluations of their neighborhoods may be presumed to reflect actual variations in the quality of those neighborhoods (1). Equally limiting is the inability to construct indices or averages of the responses of residents living in the same general area. The AHS sample design was designed to provide representative data for the U.S. and its Regions; at the time the sample was designed, no criteria were included to provide for neighborhood analysis or clustering. Therefore, relatively few pairs of interviews are available for a given location. Even these few interviews cannot be averaged, because of the inability to identify the precise site or location within which an interview has occurred (see discussion of confidentiality below).

It also appears (2) that there is a potentially significant "response-set" bias affecting questions about the respondents' assessments of the overall conditions in their neighborhood and the general condition of their housing. These two questions are asked consecutively, and the responses appear to be moderately sensitive to each other. This spillover, or contamination effect, needs to be considered in subsequent analyses. Recommendations have been made to relocate or separate the two items in future instruments.

Recommendations have also been made that AHS data be linked to census tract information, or other measures of neighborhood amenities, in order to verify the accuracy of perceived measures of neighborhood quality. There is evidence, however, that the current measures of neighborhood quality are significantly related to rent levels (52). That is, opinions about neighborhood conditions may be as relevant as objective conditions in affecting housing costs. These issues need additional clarification using the full range of AHS data before they can be said to be general patterns.

Geographic Aggregation (Confidentiality)

Census Bureau confidentiality requirements require that no information which would reveal the identity of any individual person or household is ever disclosed. Consequently, while the Census Bureau provides a public-use microdata file, the individual records cannot be associated with any geographic area having fewer than 250,000 people in 1970. Thus, in the AHS National Sample it is possible to geographically identify individual records for units in only the 125 SMSA's that had a population of 250,000 or more at the time of the 1970 census. Fifty-three central cities whose population exceeded 250,000 and whose identification did not, by subtraction, delineate a suburb of less than 250,000 are also shown. In the AHS-SMSA samples, the microdata tape geography identifies only 42 of the 59 central cities of SMSA's for which tapes are available. (Since the Saginaw, Michigan SMSA had fewer than 250,000 people, no microdata tape is available.) However, beginning in 1976, all published reports for SMSA's show data for central city and the non-central city portions of the SMSA. While preparations are being made to provide microdata tapes for the larger SMSA's showing geographic subdivisions or zones with populations of 250,000 or more according to the most recent census estimates, there is currently only one microdata tape with the capacity for analysis of tract clusters (Chicago) and none with the capacity for analysis of individual tracts or neighborhoods. It should be pointed out, however, that the sample size would not be sufficient to support a program of small-area data analysis. The Census Bureau will, upon request, run such special tabulations of tract clusters or larger neighborhoods at cost.

Unavailable Information

In any given year up to 1978, the questions used in the National and the metropolitan AHS Samples has generally been the same. There are questions which are asked of all households occupying units, questions about vacant units, and questions asked of recent mover households. On a number of important subjects, however, the AHS questionnaire provides incomplete information. Questions which are important to certain users are currently omitted or are unavailable in a useful form. Some of

these are omitted because of the inability of respondents to provide the information.

A number of items omitted from the AHS make it difficult to assess accurately all of the conditions affecting the quality of housing. There is, for example, no information on the square footage of living space or on the lot size of the housing unit. Census tests in 1967 showed that residents were unable to provide valid data in this area. (Census is however, preparing to test new versions of this question for the Annual Housing Survey.) Information on the number of rooms available for a household is limited by the lack of data on whether these are small or large rooms, and thus on how square footage affects other aspects of the household's housing satisfaction. (4)

It has been argued that there are a number of other items, currently missing from the AHS, which could increase the capacity to measure the condition and cost of housing. They include questions about the presence of dishwashers and garbage disposals, and whether the stove and refrigerator are provided by the landlord. For renters, information is lacking on whether the landlord lives in the building and whether the tenant is related to the landlord.

Other missing items of possible use are questions on occupation of head and spouse, place of work of secondary worker, ethnic origin of non-Hispanic persons, whether the respondent (head) lived in the city or suburb of the given SMSA in 1970, and the current racial composition of the respondents' neighborhood.

The overall effect of the modifications and additions that have been made to the AHS has been to provide more detailed and useful data on the characteristics of occupied units and of recent movers. Questions whose meaning may have been difficult to interpret have been refined, while new questions were added to address housing-related issues which emerged after the initial AHS data were gathered. All of the variations, modifications, and additions are readily apparent and do not substantially affect the quality of data. The changes do, however, require the user's attention when linking or comparing AHS data for several years.

CONCLUSIONS

The Annual Housing Survey has a number of distinct uses for research and policy purposes. It provides an essential description of the current state of housing in the nation and its metropolitan centers. The extensive detail on housing condition and cost, benchmarked to the 1970 and 1980 censuses, offers the basis for both current and longitudinal analyses of the strengths and problems in American housing markets.

Using AHS data, it is also possible to analyze the interaction of housing, demographic, and neighborhood characteristics. These patterns can be measured for individual housing units, for sub-urban populations of 250,000 or more, for cities, suburbs, metropolitan areas, regions, and for the country as a whole. Understanding the interplay of housing problems and determinants at a variety of levels of geographic detail allows the planner, policy maker, or researcher the opportunity to explore housing needs, costs, eligibility, movement, and satisfaction in either practical or theoretical terms. The data can assist in the design of programs, in their evaluation, and in projecting the demand for new public and private services into the next decade. Local governments, for example, have access to relatively substantial samples of housing units which they can use to determine the dynamics of local growth, revitalization, or decline by tracking patterns in successive panels of SMSA-AHS data.

Researchers have already made abundant use of the data to address a number of social science and demographic concerns. The data have served as one of the central data sets in analyzing the components and determinants of residential mobility within the United States. White flight, black suburbanization, displacement, and back-to-the-city movements have all been examined using AHS data as one component of the analyses. Economists have made extensive use of the data in establishing the components of housing quality and condition which affect price. AHS data have been used, for example, to explore the utility of current housing and rent indices of the CPI. A number of researchers have also used the neighborhood questions in the AHS to help them understand the externalities affecting housing costs, residential moves, the quality of urban life, and the need for local services.

Many Federal agencies have made extensive use of the AHS and several of its supplements. The Department of Energy uses AHS data on residential energy use and conservation. The Department of Transportation uses journey-to-work data to estimate the demand for fuel and the potential for energy-saving policies. The Department of Commerce uses the data to review the housing services component of the National Income and Product Account. The Department of Housing and Urban Development has been the

most intensive user of the data: AHS data provide a central source for establishing Fair Share plans, evaluating Housing Assistance Plans, and establishing and adjusting Section 8 Fair Market rents. The data have also been used to address a number of other current policy concerns, including the number, location, and needs of income-eligible participants in HUD programs, the extent of involuntary residential displacement, the affordability of housing for owners, the decline in multifamily housing construction, and the construction of urban impact assessments of new Federal programs.

The AHS, like most large data series, still needs improvement. Many modifications and improvements have already been made, and more are being planned. Efforts are continually being made to improve the relevance and utility of the data for public and private sector users. Many of the recommended changes must, however, be balanced against the constraints of cost and the desirability of maintaining continuity and consistency in the AHS services. It is hoped that readers of this report will participate in the process of using and improving our understanding of housing in the United States.

FOOTNOTES

1. HUD's Office of Policy Development and Research and the Bureau of the Census are undertaking a number of studies in order to describe more thoroughly the policy, programmatic, and research uses of national as well as metropolitan AHS data.
2. The sample is being allowed to expand with the housing stock to about 80,000 units in order to provide a good sample base for the Components of Inventory Change Survey, which will be added to the national AHS in conjunction with the 1980 Decennial Census of Housing.
3. In 1974, a supplemental "Survey of Purchases and Ownership" (SOP0) collected data on some appliances, but was not part of the basic AHS survey.
4. The Center for Urban Policy Research at Rutgers University and the Center for the Social Sciences at Columbia University have prepared merged files. The Center for the Social Sciences received funds from HUD's Office of Policy Development and Research to develop and maintain a software package for the longitudinal analysis of data files from the Annual Housing Surveys. When files are requested, the Center's data users' service will fill these requests at cost. Machine-readable files will be produced, as well as instructions for reading them. Periodically, the Center will publish a newsletter for its users, describing any errors that may have occurred, as well as the kinds of research that others are performing with the AHS. Contact The Center for the Social Sciences, 420 West 119th Street, New York, New York 10027.

5. The specific SMSA's and the years in which they are surveyed appear below:

AHS-SMSA Sample Groups

Group I
(Data collected 1974-75
and 1977-78)

Boston, Mass.
Detroit, Mich.
Los Angeles-Long Beach, Calif.
Washington, D.C.-Md.-Va.

Group II
(Data collected 1975-76)

Sample size - 15,000 households
Atlanta, Ga.
Chicago, Ill.
Philadelphia, Pa.-N.J.
San Francisco-Oakland,
Calif.

Group III
(Data collected 1976-77)

Houston, Tex
New York, N.Y.
St. Louis, Mo.-Ill.
Seattle-Everett, Wash.

Albany-Schenectady-Troy, N.Y.
Anaheim-Santa Ana-
Garden Grove, Calif.
Dallas, Tex.
Fort Worth, Tex.
Memphis, Tenn.-Ark.
Minneapolis-St. Paul, Minn.
Newark, N.J.
Orlando, Fla.
Phoenix, Ariz.
Pittsburgh, Pa.

Sample size - 5,000 households

Cincinnati, Ohio-Ky.-Ind.
Colorado Springs, Colo.
Columbus, Ohio
Hartford, Conn.
Kansas City, Mo.-Kans.
Madison, Wis.
(will be in Group I in
future series)
Miami, Fla.
Milwaukee, Wis.
New Orleans, La.
Newport News-Hampton, Va.
Paterson-Clifton-Passaic,
N.J.

Allentown-Bethlehem-Easton, Pa.-
Baltimore, Md.
Birmingham, Ala.
Buffalo, N.Y.
Cleveland, Ohio
Denver, Colo.
Grand Rapids, Mich.
Honolulu, Hawaii
Indianapolis, Ind.
Las Vegas, Nev.
Louisville, Ky.-Ind.

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| <p>Group I</p> <p>Saginaw, Mich. Salt Lake City, Utah Spokane, Wash. Tacoma, Wash. Wichita, Kans.</p> | <p>Group II</p> <p>Portland, Oreg.-Wash. Rochester, N.Y. San Antonio, Tex. San Bernardino-Riverside - Ontario, Calif. Springfield-Chicopee- Holyoke, Mass.-Conn.</p> | <p>Group III</p> <p>Oklahoma City, Okla. Omaha, Neb.-Iowa Providence-Pawtucket Warwick, R.I.-Mass Raleigh, N.C. Sacramento, Calif.</p> |
|---|--|--|

Revised AHS-SMSA Sample Groups

| | | | |
|---|--|--|---|
| <p>Group I</p> <p>1978-79 1982-83</p> <p>Atlanta, Ga. Philadelphia, Pa. San Francisco - Oakland, Ca.</p> | <p>Group II</p> <p>1979-80 1983-84</p> <p>Chicago, Ill. Houston, Tex. Seattle-Everett, Wash.</p> | <p>Group III</p> <p>1980-81 1984-85</p> <p>Los Angeles-Long Beach, Ca. New York, N.Y. St. Louis, Mo.-Ill.</p> | <p>Group IV</p> <p>1981-82 1981-86</p> <p>Boston, Mass. Detroit, Mich. Washington, D.C.- Md.-Va.</p> |
| <p>Sample size - 15,000 households</p> | | | |
| <p>Sample size - 5,000 households</p> | | | |
| <p>Cincinnati, Oh-Ky.-Ind. Colorado Springs, Colo. Columbus, Ohio Kansas City, Mo.-Kans. New Orleans, La.</p> | <p>Baltimore, Md. Buffalo, N.Y. Cleveland, Ohio Denver, Colo. Hartford, Conn.</p> | <p>Albany-Schenectady -Troy, N.Y. Allentown-Bethlehem -Eston, Pa.-N.J. Birmingham, Ala. Grand Rapids, Mich. Indianapolis, Ind.</p> | <p>Anaheim-Santa Ana- Garden Grove, Ca. Dallas, Tex. Fort Worth, Tex. Madison, Wis. Minneapolis-St. Paul, Minn.</p> |

Newport News-Hampton,
Va.
Paterson-Clifton-
Pasaic, N.J.
Rochester, N.Y.
San Antonio, Tex.
San Bernardino-Riverside
-Ontario, Ca.
San Diego, Ca.
Springfield-Chicopee-
Holyoke, Ma.-Conn.

Honolulu, Hawaii
Las Vegas, Nev.
Miami, Fla.
Milwaukee, Wis.
Omaha, Neb.-Iowa
Portland, Or.-Wash.
Raleigh, N.C.

Louisville, Ky.-
Louisville, Ky.-
Ind.
Memphis, Tenn. -
Ark.
Oklahoma City, Ok.
Providence-Pawtucket-
Warwick, R.I.-Mass.
Sacramento, Ca.
Saginaw, Mich.
Salt Lake City, Utah

Newark, N.J.
Orlando, Fla.
Phoenix, Ariz.
Pittsburgh, Pa.
Spokane, Wash.
Tacoma, Wash.
Wichita, Kans.

6. Estimates of housing expenditures must control for household income; there are varying levels of income elasticity for housing.
7. The sample is too scattered, and in some cases too small, to compare sites which are supposed to have high levels of displacement.
8. There is no way of determining the racial composition of the area, only the composition of the unit.
9. The Bureau of the Census has used AHS data to expand the number of categories of housing value and rent for the 1980 Census. (52)
10. The DOT supplement to the 1975 AHS National and 1975, 1976, and 1977 SMSA surveys had location of place of work coded to tract for all workers, and there are tract-to-tract commuter flow tapes available.

The following is a list of published, unpublished, and working papers which have used National and/or Metropolitan Annual Housing Survey data. Copies of these articles and reports can only be obtained by contacting the publishers or authors.

1. Bateman, David. 1977. "Analysis of Census Bureau Housing Inventory Estimates," a paper presented at the annual meeting of the American Statistical Association. (August)
2. Bielby, William. 1979. Evaluating Measures of Neighborhood Quality in the Annual Housing Survey. AHS Study No. 2. Office of Policy Development and Research, HUD.
3. Burke, Paul, Connie Casey and Gerd Doepner. "Affordability and Housing Adequacy Problems in Canada and the United States." Office of Policy Development and Research, HUD. (Forthcoming)
4. Casey, Connie H. 1978. "Structural Deficiencies and Occupancy Problems Experienced by Households in the United States." Unpublished Working Paper. Office of Policy Development and Research, HUD.
5. Casey, Stephen. 1979. The Effects of Race Upon Opinions of Structure and Neighborhood Quality. AHS Study No. 5, Office of Policy Development and Research, HUD.
6. Chi, Peter. 1979. Population Redistribution and Changes in Housing Tenure Status in the United States. AHS Study No. 4, Office of Policy Development and Research, HUD.
7. Clay, Phillip. 1979. "The Process of Black Suburbanization." Urban Affairs Quarterly 14 (June): 405-424.
8. Commerce, Department of, Bureau of the Census. 1978. Current Population Reports, Series P-23, Number 68, "Selected Characteristics of Travel to Work in 21 Metropolitan Areas: 1975", U.S. Government Printing Office, Washington, D.C.
9. Commerce, Department of, Bureau of the Census. 1978. Current Population Reports, Series P-23, Number 72, "Selected Characteristics of Travel to Work in 20 Metropolitan Areas, 1976", U.S. Government Printing Office, Washington, D.C.
10. Commerce, Department of, Bureau of Economic Analysis. 1979. Survey of Current Business. 59 (July): 1.

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